



ULTRA SYSTEM

Owner's Manual

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ULTRA SYSTEM

OWNER's Manual

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Federal Communications Commission (FCC) Radio Frequency Interference Statement

Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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Information to the User

This equipment must be installed and used in strict accordance with the manufacturer's instructions. However, there is no guarantee that interference to radio communications will not occur in a particular commercial installation. If this equipment does cause interference, which can be determined by turning the equipment off and on, the user is encouraged to contact Nanoptix Inc. immediately.

Nanoptix Inc. is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Nanoptix Inc. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

In order to ensure compliance with the Product Safety, FCC and CE marking requirements, you must use the power supply, power cord, and interface cables, which were shipped with this product or which meet the following parameters:

Power Supply

UL Listed power supply with standard 60Hz-50Hz, 100-240VAC input and 12VDC isolated output for the Ultra Board, 24VDC output for the Spill Proof printer. Power supplies used must be equipped with AC line filtering, over-current and short-circuit protection. Use of these products with a power supply other than a Nanoptix Inc. approved one will require you to test the power supply and Nanoptix Inc. printer for FCC and CE mark certification.

Communication Interface Cable

An approved Nanoptix interface cable must be used with this product. Use of a cable other than Nanoptix approved product will require that you test the cable with the Nanoptix Inc. printer and your system for FCC and CE mark certification.

Power Cord

A UL listed, detachable power cord must be used. A power cord with Type SVT marking must be used. For applications outside the North America, power cords that meet the particular country's certification and application requirements should be used.

Use of a power cord other than described here may result in a violation of safety certifications that is in force in the country of use.

Industry Canada (IC)

Radio Frequency Interference Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

NOTE:

Information contained in this manual applies to the following firmware versions:

Ultra Board Ver. 1:	5.02A
Ultra Board Ver. 2:	6.05A
Spill Proof Printer	
System A:	3.10M
System B:	5.64A

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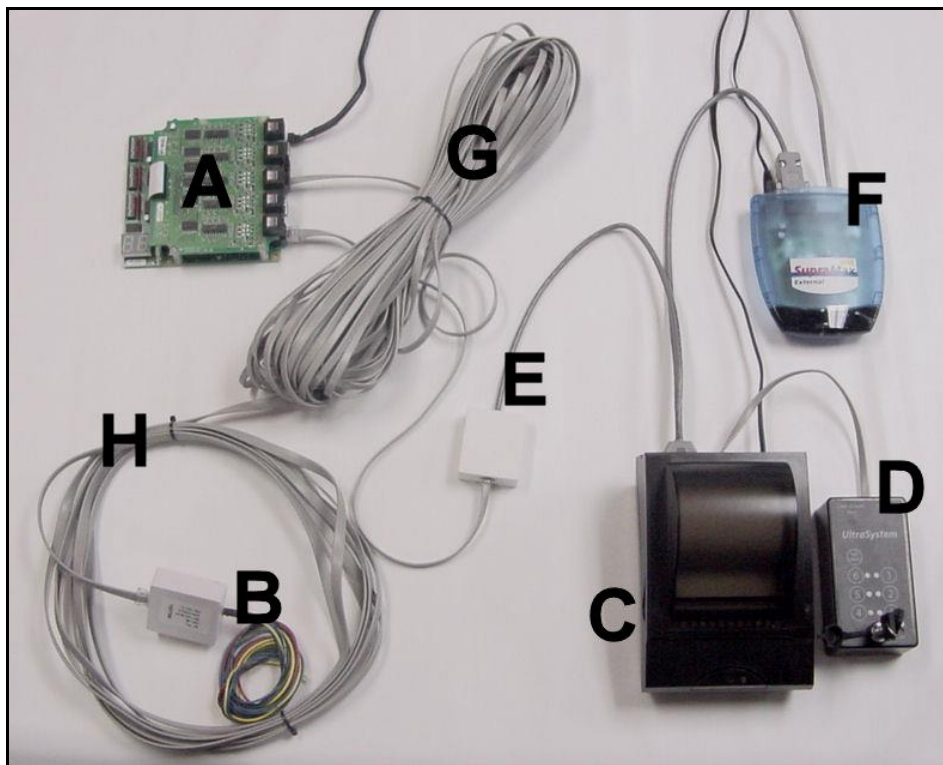
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About the Ultra System

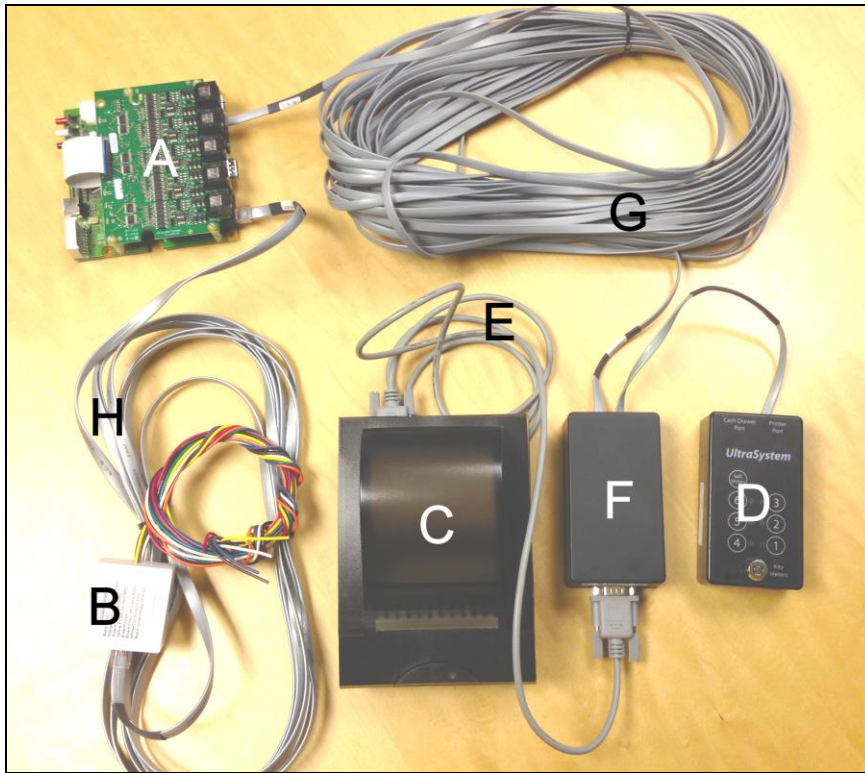
1.1 Description of the Ultra System

The Ultra System has been designed to manage small game rooms. With simple non-intrusive connections, the system can be scaled to meet different needs. From remotely clearing credits and printing behind the counter to acting as a complete bookkeeping center.



- A - Ultra Board
- B - Break out box
- C - Spill Proof Printer
- D - Control box
- E - "Y" cable
- F - Modem (Optional)
- G - 100' RS485 cable (RJ25-R25)
- H - 20' port cable (RJ45-RJ45)

Figure 1: Ultra System Rev.A



A - Ultra Board

B - Break out box

C - Spill Proof Printer

D - Control box

E - RS232 Cable

F - Game Controller

G - 100' RS485 cable
(RJ25-R25)

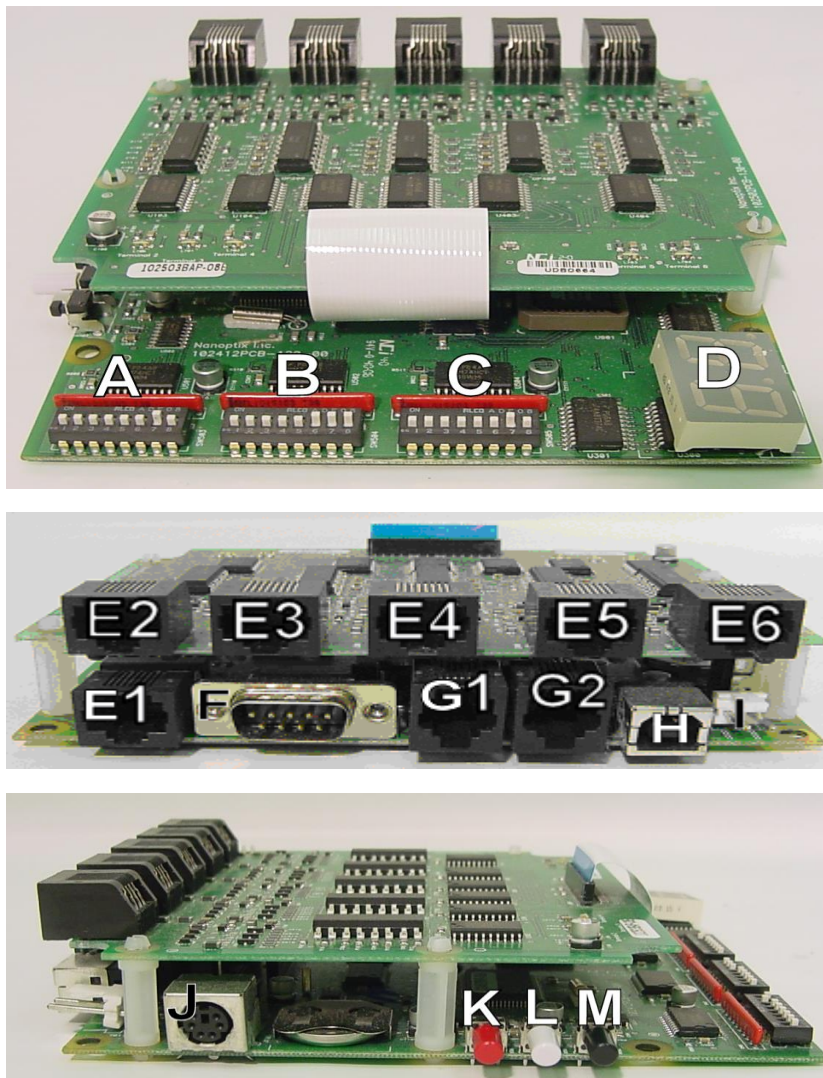
H - 20' port cable (RJ45-
RJ45)

Figure 2: Ultra System Rev. B

1.2 Description of the Ultra Board

The Ultra Board is the central component of the Ultra System. Each unit has a unique serial number. A custom message can be entered and the time and date can be printed on every voucher. All major functions and settings can be set using the DIP switches or the function buttons. With the use of the supplied cable, the board can be connected to a PC/Laptop or PS2 keyboard to access all of the advances options and settings.

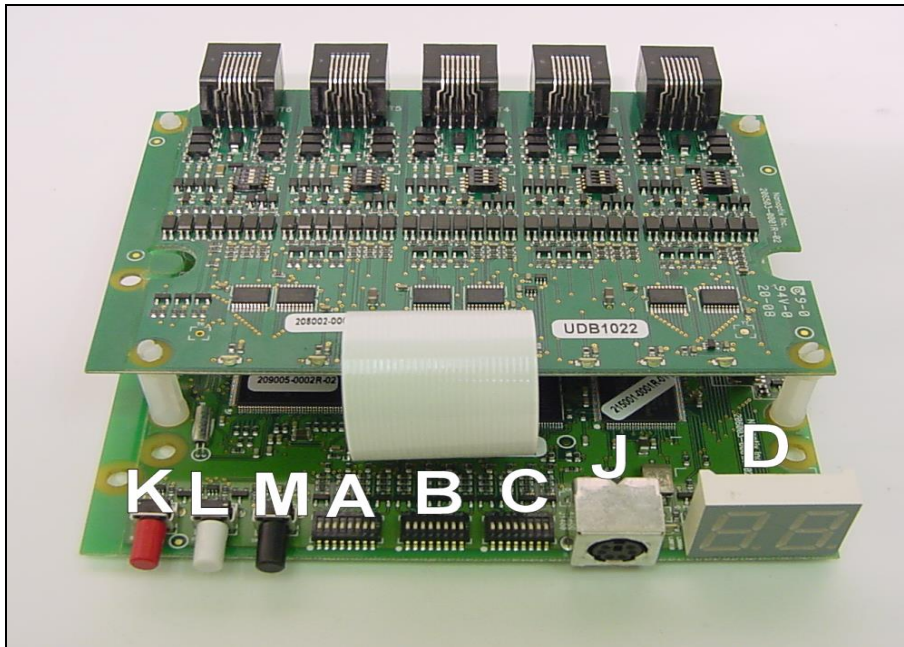
1.2.1 Ultra Board - version 1



- A - DIP switch bank 1
- B - DIP switch bank 2
- C - DIP switch bank 3
- D - LED Display
- E - Game ports(qty. 6)
- F - RS232 port
- G - RS485 ports (qty. 2)
- H - USB port
- I – Power port (5VDC only)
- J - Keyboard port
- K - Function Button 1
- L - Function Button 2
- M - Function Button 3

Figure 3: Ultra Board ver.1

1.2.2 Ultra Board - version 2



A - DIP switch bank 1

B - DIP switch bank 2

C - DIP switch bank 3

D - LED Display

E – Game ports(qty. 6)
(E1 also supplies power to the Ultra Board)

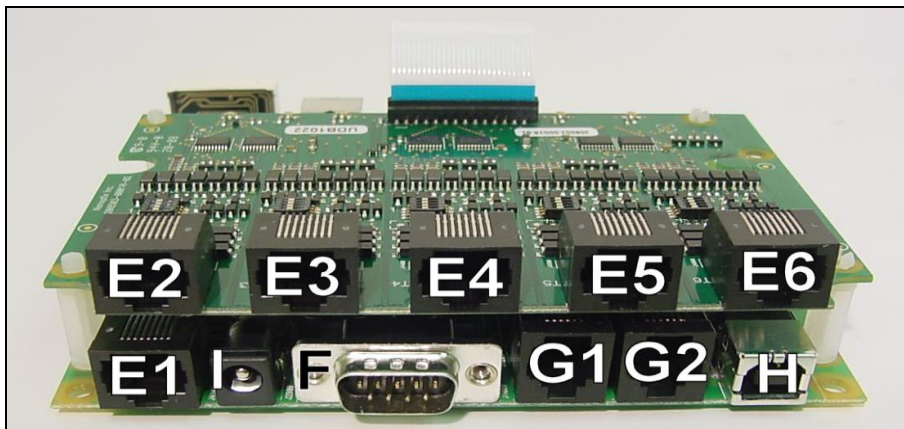
F - RS232 port

G - RS485 ports (qty. 2)

H - USB port

I - External power port (5 to 12 VDC accepted) (Optional)

J - Keyboard port



K - Function Button 1

L - Function Button 2

M - Function Button 3

Figure 4: Ultra Board ver.2



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1.3 General specifications

Operating Temperature	0 to 50 C
Storage Temperature	-40 C to +65 C
Operating Relative Humidity	5% to 90% RH at 50C (non-condensing)
Communication Interface	USB, RS-232C, RS-485
Optional Interface	Keyboard (PS/2)
Memory/Firmware	1 Mbit of SRAM, 4 Mbit of flash and 128Kbit of EEPROM
Human Interface	2x8 Segment LED and port Status LEDs
Dimensions	5 in. x 5.1 in. (130 mm x 127 mm)
Weight	0.38 lbs (0.17 Kg)
Emission Standards	United States - FCC Part 15 Subpart B Canada - Industry Canada ICES-003 Europe – EN 55022 Class A emissions
Immunity Standards	EN55024

Table 1: Specifications

1.4 Ultra Board Controls

1.4.1 Power source and reset

1.4.1.1 Ultra Board - version 1

This board is powered by the white 2 pin power input harness (**5 VDC only**). The board is reset by disconnecting and reconnecting this harness.

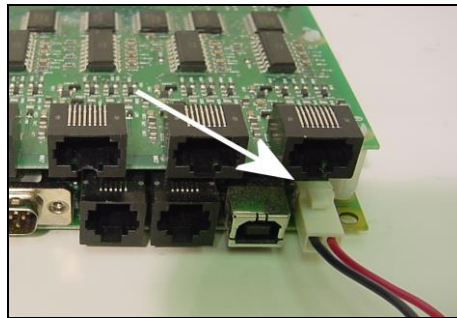


Figure 5: Ultra Board Ver.1 Reset

1.4.1.2 Ultra Board - version 2

This board has 2 supply options. It can be powered by an external power supply (the external source must be an isolated 5-12 VDC power supply). The other option is to use power from game terminal #1 to supply the Ultra board. The board is reset by disconnecting and reconnecting the cable.

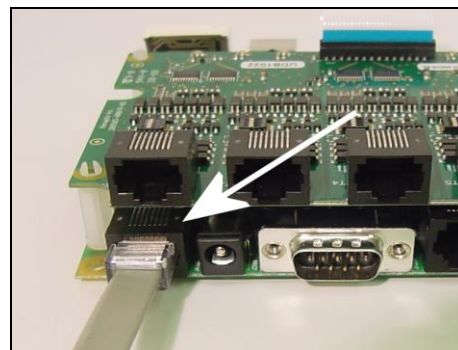
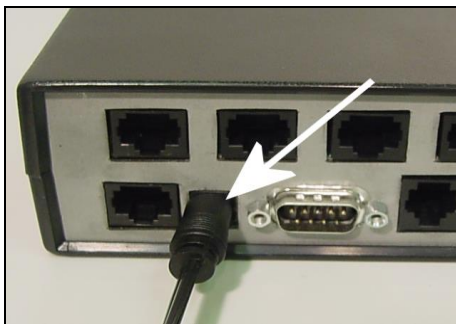


Figure 6: Ultra Board Ver.2 Reset

1.4.2 Function Buttons

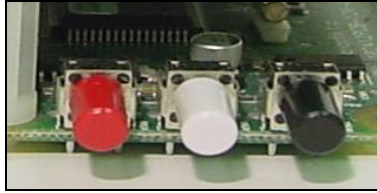


Figure 7: Function buttons

- **Function Button 1 (RED or SW500):**
 - Pressing while In Run Mode ("PO" on display): Will causes the printer or terminal to display/print a summary of the current DIP switch settings, the unit serial number and the software revision number.
 - Pressing and holding for 15 sec while powering up: Will enable communication with a keyboard via PS2 port
- **Function Button 2 (WHITE or SW501):**
 - Pressing while In Run Mode ("PO" on display): will do nothing
 - Pressing and holding for 10 sec while powering up: will do nothing
- **Function Button 3 (BLACK or SW502):**
 - Pressing while In Run Mode ("PO" on display): Will do nothing
 - Pressing and holding for 15 sec while powering up: Will put the Ultra board into COIN IN/CASHOUT auto calibration mode. If successful, the letters "CA" will be seen on the display. Simply insert \$1.00 to the game, then clear the credits (by pressing the knock off or cash out button), repeat this operation for each additional game/port which needs to be calibrated. Once finished calibrating desired ports, press *F1* (RED button) to exit (a setup report will be printed). Then power OFF and ON the Ultra board to get back into polling mode. To reset all ports back to the Dip Switch default values, press *F2* (White Button) at any time while in calibration mode.

1.4.3 Function Buttons used in Combination:

- **Function Buttons 1 and 2**
 - Pressing simultaneously while In Run Mode ("PO" on display): Will do nothing
 - Pressing and holding simultaneously for 15 sec while powering up: Will put the Ultra Board into "Multi Drop" address configuration mode. If successful, the letters "Ad" will be displayed for a second. Pressing *function button 3 (Black)* will sequentially change the Ultra board's "Multi Drop" address from 01 up to 32. To save the new address into memory, the Ultra Board must be turned OFF and then back ON.
Note: When more than one ultra boards are used in the same network, each boards needs to have a unique Address. When in use with a Spill Proof printer, the addresses values must be limited from 01 to 06
- **Function Buttons 1 and 3**
 - Pressing simultaneously while In Run Mode ("PO" on display): Will prompt the Spill Proof printer to printer the last voucher saved in memory
 - Pressing and holding for 10 sec while powering up: Will do nothing
- **Function Buttons 2 and 3**
 - Pressing simultaneously while In Run Mode ("PO" on display): Will do nothing
 - Pressing and holding simultaneously for 15 sec while powering up: Will do nothing
- **Function Buttons 1, 2 and 3**
 - Pressing simultaneously while In Run Mode ("PO" on display): Will do nothing
 - Pressing simultaneously and holding for 15 sec while powering up: Will cause the Ultra Board to erase the EEPROM (i.e. reset all the counters back to zero and reset any DIP switch overrides that may have been set as well as changing all the settings back to default). If successful, the letters "CL" will be displayed on the 2 digit display.

1.4.4 Display message

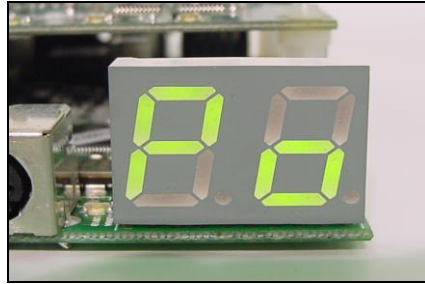


Figure 8: Display

Display message on 2x7 segment LED display:

Ad	-Multi drop address setup (displayed 1sec while powering up)
Po	-Polling: Normal Operation
Pr	-Printer error: printer not connected or printer error (i.e.out of paper).
Cn (n=1 to 6)	-Want to Cashout Game n.
SA	-Saving values in EEPROM
Cb	-Clearing Bookkeeping
To	-Timeout on command
EE	-Clearing EEPROM (takes about 30 seconds)
CB	-Clearing Bookkeeping (takes about 2 seconds)
CA	-Calibration mode (displayed 1sec while power ring up)
CL	-Erase the EEPROM
T1 or T6	-Select Single game or Multi game
AS,SL, GA,GS	-Select Master,Slave, Ghost Master or Ghost Slave
P1 or P0	-Enable printer or Disable printer
01 to 32	-Select Multi drop address

1.4.5 DIP switches

Note: DIP switch settings can be overridden by software configuration. When an override is in effect, "Dip Switch Over Write ON" will be printed on the power ON status ticket



Figure 9: Dip Switches Board Ver. 1

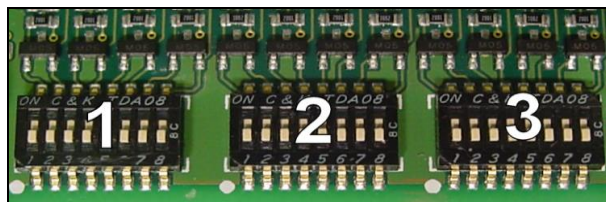


Figure 10: Dip Switches Board Ver. 2

Ultra Board DIP Switch Settings																																	
Function	Value	DIP Switch 1 (SW503)								DIP Switch 2 (SW504)								DIP Switch 3 (SW505)								1	2	3	4	5	6	7	8
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8																
Pulses in to equal 1 point	1	0	0	0	0	0																											
	2	1	0	0	0	0																											
	4	0	1	0	0	0																											
	5	1	1	0	0	0																											
	8	0	0	1	0	0																											
	10	1	0	1	0	0																											
	15	0	1	1	0	0																											
	20	1	1	1	0	0																											
	25	0	0	0	1	0																											
	40	1	0	0	1	0																											
	50	0	1	0	1	0																											
	75	1	1	0	1	0																											
	100	0	0	1	1	0																											
	150	1	0	1	1	0																											
	200	0	1	1	1	0																											
	250	1	1	1	1	0																											
	400	0	0	0	0	1																											
	500	1	0	0	0	1																											
	1000	0	1	0	0	1																											
	2000	1	1	0	0	1																											
	2500	0	0	1	0	1																											
	5000	1	0	1	0	1																											
Each point is worth (It's Printed) (Value)	1						0	0	0	0																							
	2						1	0	0	0																							
	5						0	1	0	0																							
	10						1	1	0	0																							
	15						0	0	1	0																							
	20						1	0	1	0																							
	25						0	1	1	0																							
	50						1	1	1	0																							
	75						0	0	0	1																							
	100						1	0	0	1																							
	150						0	1	0	1																							
	200						1	1	0	1																							
	250						0	0	1	1																							
	400						1	0	1	1																							
	500						0	1	1	1																							
	1000						1	1	1	1																							
Multiple Vouchers	NO																																
	YES																																
Voucher Max Amount per Voucher	Variable	Set to "Each point is worth" Value																															
	5																																
	10																																
	25																																
Printed Value Equal to:	Money																																
	Points																																
Money Equal to :	Dollars																																
	Cents																																
Use Custom Message	No																																
	Yes																																
Use Date & Time	No																																
	Yes																																

Table 2: DIP Switch banks 1 & 2



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Ultra Board DIP Switch Settings																									
Function	Value	DIP Switch 1(SW503)								DIP Switch 2 (SW504)								DIP Switch 3 (SW503)							
If Multi -		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Use Signature Line	No																	0							
	Yes																	1							
State Laws	NONE																	0							
	USER																	1							
Print Duplicate Cashout Automaticly	No																	0							
	Yes																	1							
Long Version Report	No																		0						
	Yes																		1						
Print Surplus in Report	No																		0						
	Yes																		1						
Cashless Feature	No																		0						
	Yes																		1						
Printer Type	EZ-Tear																					0	0		
	Spill Proof																					1	0		
	EZ-Tear+ (print bar code)																					0	1		
	User Defined (need PS2 keyboard)																					1	1		

Table 3: DIP Switch bank 3

1.4.6 Status LEDs

Status LEDs are illuminated when its corresponding game terminal is connected and turned ON.

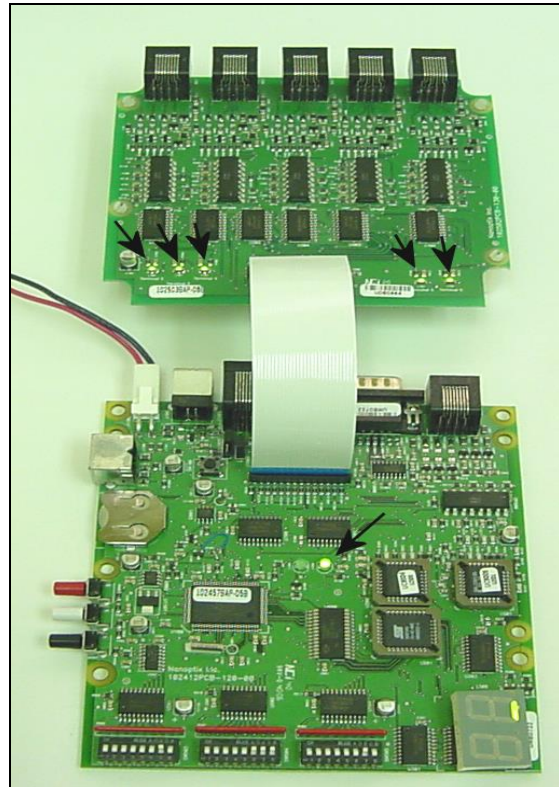
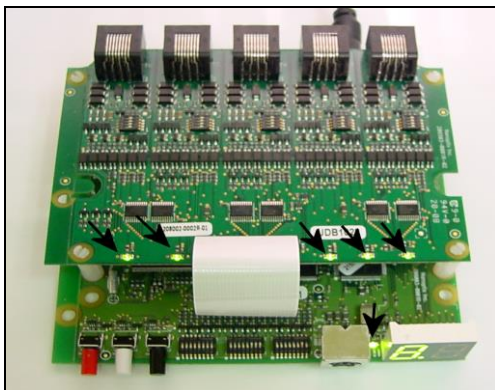


Figure 11: Status LEDs

1.4.7 Advanced configuration – using a PS2 Keyboard and Spill Proof printer

For advanced configurations, a PS2 keyboard can be connected to the Ultra Board. DIP switch 7 of bank 3 must be set to ON and DIP switch 8 of bank 3 must be set to OFF. The Ultra Board must be powered up while holding the red button (function 1) for the keyboard to be detected. Do not release the red button until “P5” is visible on the two digit display. Once the start up routine is complete, the printer will print the power on information. Press F4 to enter the set up menu and follow the instructions that will be printed by the Spill Proof printer. See [Appendix A](#) for further information.

Note: The keyboard's F1, F2 and F3 correspond to the 3 function buttons on the Ultra board (Red, White and Black)

Note: Modem must be disconnected



Figure 12: Configurations using Keyboard & Printer

Functions Keys

F1 (or RED button)	Print Status Report
F2 (or WHITE button)	Print Bookkeeping
F3 (or BLACK button)	Force Hyper Terminal Communication
F4	Enter Setup
F5	Print Last Cashout
F6	Future
F7	Future
F8	Enable/Disable printer
F9	Enable/Disable multi-Game
F10	Master/Slave/Ghost Master/Ghost Slave
F11	Scroll slave address
F12	Clear bookkeeping

1.4.8 Advanced configuration – using a terminal software

For advanced configurations, a personal computer along with terminal software (such as Hyper Terminal) can be used to display the configuration menu. The Ultra board must be connected to the computer using a RS232 null modem cable (Nanoptix part # 102805-0000R). DIP switch 7 and 8 of bank 3 must be set to OFF. Once the start up routine is complete, the terminal will display the power on information. Press F4 to enter the set up menu and follow the instructions that will be displayed on the terminal's screen. See [Appendix A](#) for further information.

Note: The keyboard's F1, F2 and F3 correspond to the 3 function buttons on the Ultra board (Red, White and Black)

Note: Modem must be disconnected

Com Port Settings: 9600 baud, 8 data bit, no parity, no flow control

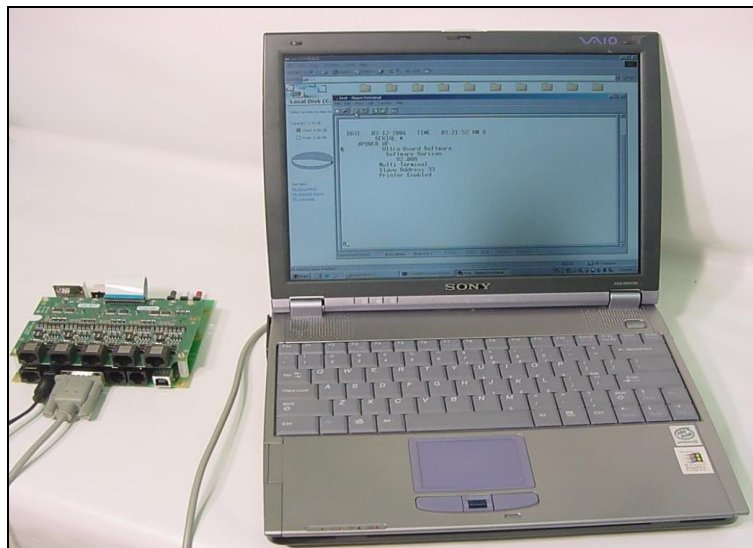


Figure 13: Configurations using terminal

Functions Keys

F1 (or RED button)	Print Status Report
F2 (or WHITE button)	Print Bookkeeping
F3 (or BLACK button)	Force Hyper Terminal Communication
F4	Enter Setup
F5	Print Last Cashout
F6	Future
F7	Future
F8	Enable/Disable printer
F9	Enable/Disable multi-Game
F10	Master/Slave/Ghost Master/Ghost Slave
F11	Scroll slave address
F12	Clear bookkeeping

2 Control Box

2.1 Description of the Control Box

The Control Box is the user interface of the Ultra System. It is used to remotely clear credits and print bookkeeping information.



Figure 14: Control Box

- **LEDs 1 to 6**
 - ON solid: Indicates that the corresponding game terminal is connected and turned ON.
 - Blinking: Indicates that the corresponding game terminal is being played
 - All 6 LEDs blinking: Printer is in error
- **Buttons 1 to 6:**
 - The numbered buttons are primarily used to remotely force a cashout in the corresponding game terminal. Pressing an active game's button (1-6), will force the corresponding game to cashout by simulating the action of pressing the "knock off" button. The game will send pulses to its credits out hard meter, which the Ultra Board will detect and count. Once the hard meter stops for more than 3 second, the Ultra Board will print a cashout ticket for the amount corresponding to the pulses received.
- **Soft Meter button:**
 - prints the SOFT METERS
Note: You will be prompted for a password if one has been set.
- **Key:**
 - prints the KEY METERS

2.2 Buttons used in Combination:

- **SOFT METERS + BUTTON 1:** Pressing these 2 buttons simultaneously will print the last cashout printed.
Note: The words "DUPLICATE VOUCHER" will also be printed at two locations on the ticket.
- **SOFT METERS + BUTTON 6:** Pressing these 2 buttons together will clear the soft meter values back to zero.
- **Setting a password on the SOFT METERS:**
A password is set by turning the key while the soft meter button is pressed. As confirmation, all the LEDs should turn off. Then select your password by pressing the buttons (1-6) in the order desired, the LED of each key pressed will turn on once it has registered. The maximum password length is 8 digits. Once desired password has been entered, press the **SOFT METERS** again to save the value.
Note: All instructions including the password itself will be printed
Note: If no keys are pressed within 15 seconds while entering the password, the operation will timeout.

Once a password has been set, the user will be prompted to enter the password every time the soft meter button is activated

2.3 Meters:

The Ultra Board maintains 3 full sets of (non-volatile) electronic meters: Soft Meters, Key Meters and Central Meters. Each set is completely independent from each other. They can be individually cleared at any time.

- **The Soft Meters**
These meters are typically used by the "location owner". To print this set of meters, press the "Soft Meter" button. To clear the values back to zero, press the "Soft Meter" button and button "6" simultaneously.
- **The Key Meters**
These meters are typically used by the "route operator". To print the key meters, turn the key. The key meters report will be printed immediately and will ALWAYS be cleared following the report.
- **The Central Meters**
These meters are used by the remote access Nanoptix Central System software. Only the Central System Software is capable of clearing these meters. They can also be viewed also with the Ultra Board Configure Software, but they cannot be cleared.

3 Spill Proof Printer

There are 2 version of the spill proof printer

- Ultra System Rev A: In this system the printer has a DB15 connector for RS485 communication with the Ultra Board and RS232 communication with an optional modem. This printer also has an RJ12 connector for communication with the control box
- Ultra System Rev B: in this system, the printer has a DB9 connector for communication with the game controller.

For more information on the Spill Proof printer, please refer to the Spill Proof printer manual



Figure 15: Spill Proof Printer

4 Game Controller

Note: The Game controller is only used in Ultra system Rev B

The Game controller is a versatile and configurable device. It enables the RS485 communication between the Ultra Board and the new DB9 Spill Proof printer. It also takes over communication with control box.



Figure 16: Game Controller

5 Connections and Configuration

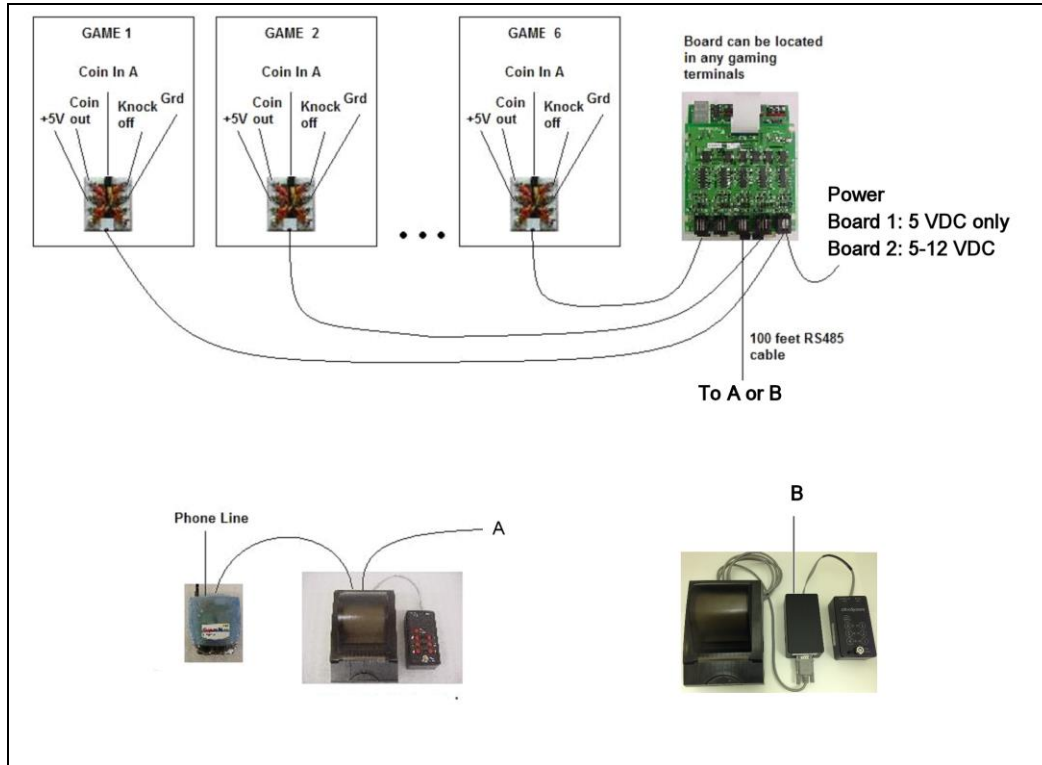


Figure 17: Installation overview

5.1 Setup for location with a maximum of 6 gaming terminals

1. Install the Spill Proof printer on the attendant counter.
 - Ultra System Rev A: Connect the control box to Spill Proof printer.
Note: The printer's Aux Port must be set to *Site Controller 1*
 - Ultra System Rev B: Connect the controller box to Game Controller. Connect Spill Proof to Game Controller using RS232 cable.
2. Using the included hardware, mount the Ultra Board inside the gaming terminal which is closest to the attendant counter.
Note: If the gaming floor layout is to be rearranged from time to time, a protective enclosure (Nanoptix part #:750027-0000R) is available in order to mount the Ultra Board outside of the gaming terminals.
Note: In order for the Ultra board to communicate with the Spill Proof, DIP switch 7 of bank 3 has to be set to ON and DIP switch 8 of bank 3 has to be set to OFF.

3. Power up the Ultra Board
 - If you are using Ultra Board version 1: Connect the power input harness' red wire to +5VC and the Black wire to ground
 - If you are using Ultra Board version 2: There is no separate power connection required. Power for the Ultra Board is provided by the gaming terminal through port # 1. As an option, the Ultra Board can be powered by an external isolated 12 VDC power supply (Nanoptix part # 270011-0001R)

Note: problems can occur if an isolated power supply is not used
4. Connect the Ultra Board to the attendant terminal using 100 foot cable
 - Ultra System Rev A: Connect the Y cable to the printer via the DB15 connection. Connect the Ultra Board 6 pin modular jack to the Y cable's modular jack using the 100 foot 6 wire cable
 - Ultra System Rev B: Connect the Ultra Board 6 pin modular jack to Game Controller using the 100 foot 6 wire cable
5. Using the included hardware, mount a break out box in game terminal #1. Using the included crimps, connect each wire to the gaming terminal's corresponding harness (See Figure 18). Repeat the same process for the other gaming terminals.

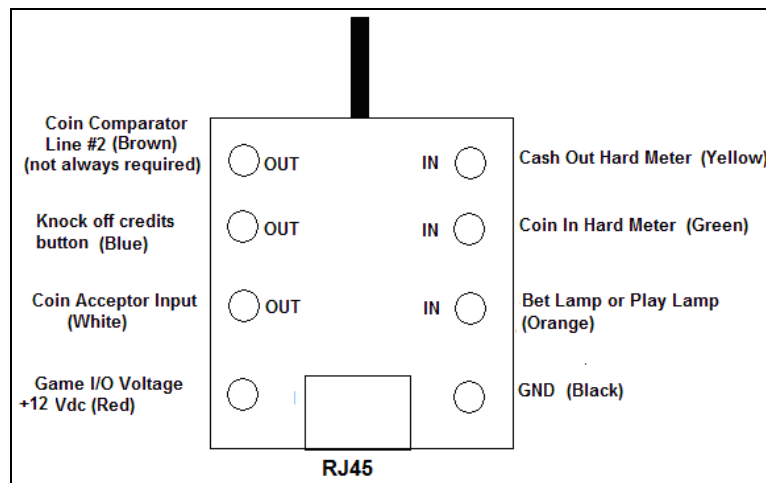


Figure 18: Break out box

6. Connect gaming terminal 1's break out box to the Ultra Board's corresponding port using one of the 8 conductor cables. Repeat the same process for the other gaming terminals.
7. If an external modem (Nanoptix part # 102828-0000N) is being used for remote access. Install the modem on the attendant counter next to the Spill Proof printer. Connect the modem to an available telephone line. Also connect the modem to Y cable via the DB9 connection. The included straight-through serial cable can be used as an extension. The communication settings of the modem are configured via the serial connection every time the Spill Proof printer is turned on. Therefore it is necessary to restart the Spill Proof printer anytime the modem is turned OFF.

5.2 Setup for locations with 7 to 36 games

Follow instructions in section 5.1 with the following additions and modifications

Note: When more than one Ultra Board is used, the "Remote Cashout" feature is not available

1. Connections

a. Add additional Ultra Boards to the RS485 network in daisy chain fashion

1. Connect Ultra Board "2" to Ultra Board "1" through the 6 pin modular jacks using a second 100 foot 6 wire cable.
2. Connect Ultra Board "3" to Ultra Board "2" through the 6 pin modular jacks using a third 100 foot 6 wire cable.
3. And so on.... Up to a maximum of 6 Ultra Boards

2. Spill Proof Printer

a. Set the Spill Proof's Aux Port to Site Controller 2

There are 3 ways to change the Aux Port Parameter:

1. Use GetConfig software to change the configuration:
Download the GetConfig software from the Nanoptix website, extract the content and run the program. Set the correct communication parameters and click the "Get Configuration" button. Once all the boxes have populated, set the Aux Port to "Site Controller 2" and click on the "Set Configuration" button.
2. Send a text file to the board with a computer:
Create a text file with the following command" <0x1D>TB<0x09>. Then send this file to the printer using terminal software such as Hyper Terminal.
3. Send a configuration file to the board with a computer:
Run Flashimage.exe along with the appropriate .bix file if an appropriate bix file is not available, create a file named C201E_SiteController2.bix Then with the help of a Hex editor, enter one byte "09" (in binary). Connect the computer to the desired Ultra board using an RS232 or USB cable

Note: the folder must only contain the flashimage.exe file and the C201E_SiteController2.bix file

3. Ultra Boards

Note: The following applies to each Ultra Board used in the RS485 network

- a. **For each Ultra Board used: Set DIP switch 6, 7 and 8 of bank 3 to ON.**
- b. **Perform a hard reset on each of the Ultra Boards**
- c. **On power up, each Ultra Board will display a multi-drop address between 1 and 33.**

Note: Each Ultra board is required to have a unique multi-drop address other than 33 (33 means no address is set).

There are 3 ways to change the address

1. By using the function buttons on the Ultra Board:
See section 1.4.3 Function Buttons 1 and 2
2. By using a PS2 keyboard and the Spill Proof printer as a display:
See section 1.4.7 or 1.4.8
3. Send a configuration file to the board with a computer:
Run Flashimage.exe along with the appropriate .bix file if an appropriate bix file is not available, create a file named C210C_Address0X.bix (where X is the address number, 1 to 6). Then with the help of a Hex editor, enter one byte 01 to 06 (in binary) corresponding to the desired address. Connect the computer to the desired Ultra board using an RS232 or USB cable

Note: the folder must only contain the flashimage.exe file and the C210C_Address0X.bix file.

4. Testing the Installation

- a. **Turn OFF the Spill Proof printer and every Ultra Board.**
- b. **Turn ON each Ultra Board, then turn ON the Spill Proof printer**
- c. **Within 30 seconds the Spill Proof printer will print a "Ultra Board Network Report".** It will list all Ultra Boards connected (1-6) as well as each game which is connected (1-6). It will also display the firmware version of the Spill Proof printer and each Ultra Board connected.
- d. **Add credit and cash out on each then press the soft meter button on the control box.** If successful, a report should be printed with the correct results.

6 Troubleshooting the Ultra System

6.1 Testing the Ultra Board

Every time the Ultra Board is turned on, a power on ticket will be printed by the Spill printer or displayed on the terminal screen. The resident status ticket lists the current board settings. This ticket can also be used to verify communication between the Ultra Board and the printer.

```

DATE : 10-27-2008   TIME : 11:38:24 AM D
SERIAL # 123456
POWER UP
  Ultra-Board Software
    Software Version
      V5.02A
    Multi Terminal
    Ghost Slave
    Printer Disabled
  
```

Figure 19: Power ON Status Ticket

6.2 Testing the Spill Proof Printer

The Spill Proof printer's proper operation can be verified by printing a resident status ticket. During power up, hold the form feed button activated for a minimum of 10 seconds, then release. The resident status ticket displays the firmware version, communication settings, sensor readings as well as other important information. The resident status can also be used to verify the printers print quality.

Note: When only one Ultra Board is used (i.e. to monitor 6 games max) the Aux. Port must be set to Site Controller 1. When 2 to 6 Ultra Boards are used (i.e. to monitor 7 to 36 games) the Aux. Port must be set to Site Controller 2.

Model:	CALLISTO-FX
Firmware:	CAL-3.10M-61AUZtHX
COMMUNICATION	
Interface:	Serial
Baud:	9600
Data Bits:	8
Parity:	NONE
Handshaking:	PRT STATUS
Print Mode:	Page
Aux Port:	Site Controller 1
PRINT CONTROL	
Darkness Control:	-1%
Voltage:	24.3 Volts
Temperature:	26 Celcius
Speed:	3.8 IPS – 96mm/sec
Black Bar Index:	Disabled
SYSTEM RESOURCES	
FLASH	-Used: 0
	-Free: 24576
LIBRARY INVENTORY	
Templates:	none
Print Regions:	none
Graphics:	None
Fonts:	0,1,2,3,4,5,6,7,8,13,14,15
MANUFACTURING INFORMATION	
Printer ID:	5465789
Date Code:	20080717
PWM Setting:	7F7F7F7FFFFFFF
A to D:	DE7AA400FD000000
Current Configuration:	B00DFFFFFFFFFFFFFFFFFFFF
Status:	C21-2.41G-40-40-40-40-P

Figure 20: Power ON Status Ticket

6.3 Communication Ports

6.3.1 Serial (RS232) Interface

The table below describes the connection pin-out for the serial Interface (9-pin DB9)

Pin	Signal Name	Ultra Board I/O	Terminal I/O	Ultra Board Function
1	n/a	No connect	n/a	none
2	RS232_RXD	Input	Output	Receive
3	RS232_TXD	Output	Input	Transmit
4	RS232_DTR	Input	Output	handshaking
5	Signal Ground	Signal Ground	Signal Ground	Signal Ground
6	RS232_DSR	Output	Input	handshaking
7	RS232_RTS	Output	Input	handshaking
8	RS232_CTS	Input	Output	handshaking
9	n/a	No connect	n/a	none
10	Frame Ground	Frame Ground	Frame Ground	Shield
11	Frame Ground	Frame Ground	Frame Ground	Shield

Table 4: 9 Pin RS232 Serial Interface

6.3.2 Interconnect (RS485) Interface(s) pin-out

The table below describes the connection pin-out for the Interconnect interface(s) (6-pin modular jack)

Pin	Signal Name	Ultra Board I/O	Host I/O	Ultra Board Function
1	DGND_ISO	Signal Ground	Signal Ground	Isolated signal GND
2	RS485_TXD+	Output	Input	Data transmit
3	RS485_TXD-	Output	Input	Data transmit
4	RS485_RXD+	Input	Output	Data receive
5	RS485_RXD-	Input	Output	Data receive
6	DGND_ISO	Signal Ground	Signal Ground	Isolated signal GND

Table 5: RS-485 Interconnect Interface(s) Pin-Out

6.3.3 Game terminal interface(s)

The table below describes the connection pin-out for the game terminal interface(s) (8-pin modular jack).

Pin	Signal Name	Ultra Board I/O	Host I/O	Ultra Board Function
1	D_GND	Digital Ground	Digital Ground	Terminal Ground
2	IN_3	Input	Output	Play lamp
3	IN_2	Input	Output	Coin IN Hard meter
4	IN_1	Input	Output	Coin OUT Hard meter
5	OUT_3	Output	Input	Coin acceptor 2
6	OUT_2	Output	Input	Knock OFF
7	OUT_1	Output	Input	Coin acceptor 1
8	12VDC / 5VDC	Power Input	Powers source	Terminal Power

Table 6: Game terminal interface(s)

7 Media and Supplies Guide

7.1 Parts List

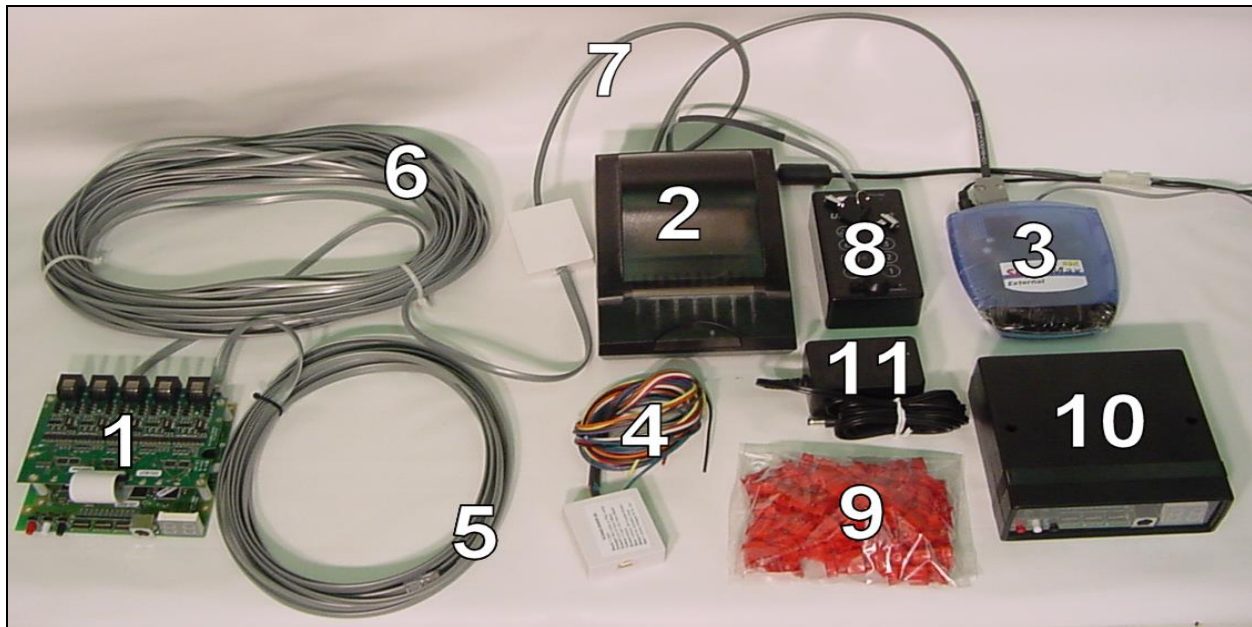


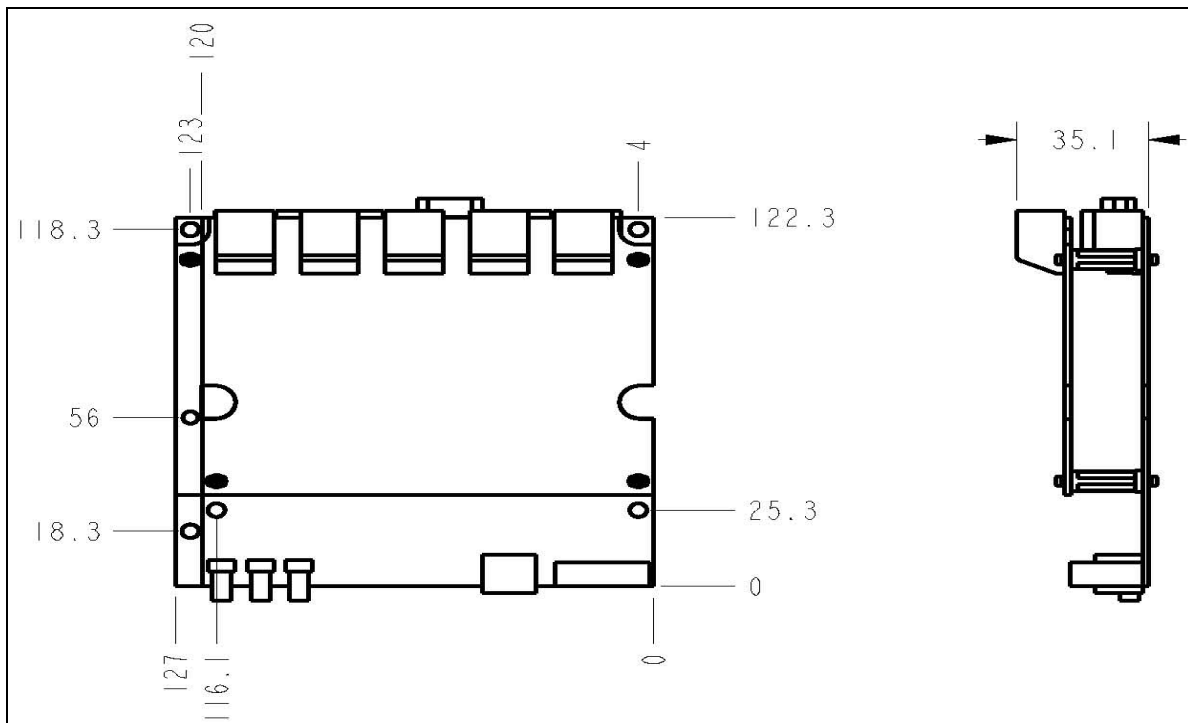
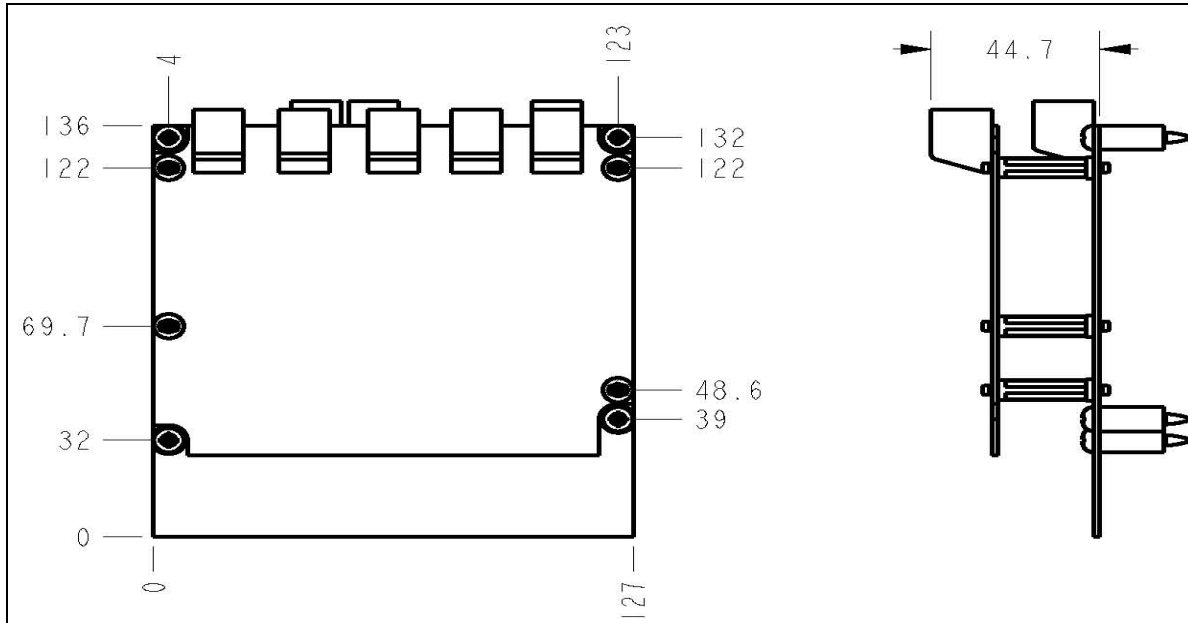
Figure 21: Ultra System Components

Item	Part #	Description
1	103709-0000R	Ultra Board (Main board, daughter board and flat flex cable)
2	103732-0000N	Spill Proof Printer kit (includes power supply and USB cable)
3	102828-0000N	Modem (optional)
4	103465-0000R	Break out box (8 wire assembly)
5	102524-0110R	RJ45-RJ45 Cable (6 M, ultra board to break out box)
6	102799-0100R	RJ11-RJ11 cable (30 M, Ultra Board to Spill Proof printer)
7	210004-0001R	Harness - DB15 to DB9 and RJ12 box
8	102812-0000N	Control Box
9	100580-0071R	Wire Tab Splice
10	750027-0000R	Enclosure for Ultra Board Ver.2
11	270011-0001R	Power supply (12VDC)
n/a	950017-0010R	Game Controller
n/a	102082-0000R	Serial straight through cable (printer to game controller)
n/a	102805-0000R	Serial "null modem" cable (ultra board to PC)
n/a	100390-0001R	USB Cable (for ultra board programming/diagnostics)
n/a	102085-0001R	USB Cable (for Spill Proof programming/diagnostics)

Note: Part numbers may change without notice, please contact Nanoptix for latest information (Ultra Board Version 2 shown)

Table 7: Ultra System Components

8 Mechanical Drawings





ULTRA SYSTEM *OWNER's Manual*

9 Maintenance & Cleaning Instructions

The Ultra Board does not require any maintenance or cleaning. Please refer to the Spill Proof manual for printer maintenance

10 Ultra Board Setting for Common game

WHEN SETTING UP THE ULTRA BOARD, SET DIP SWITCH #1, POSITION 1-5 FOR THE # OF COINS IN TO EQUAL THE TICKET VALUE. SET DIP SWITCH #1 POSITION 6-8 AND DIP SWITCH #2 POSITION 1 FOR THE DOLLAR VALUE OF THE TICKET.

MOST 8-LINE TYPE BOARDS

FOR EXAMPLE :

NICKLE PLAY = DIP SWITCH #1 POSITION 3 & 4 ON = 100 NICKLES, AND POSITION 7 ON = \$5 TICKET. $100 \times .05 = \$5.00$

QUARTER PLAY = DIP SWITCH #1 POSITION 1,2,&3 ON = 20 QUARTERS, AND POSITION 7 ON = \$5 TICKET. $20 \times .25 = \$5.00$

DIME PLAY = DIP SWITCH #1 POSITION 2&4 ON = 50 DIMES, AND POSITION 7 ON = \$5.00 TICKET $50 \times .10 = \$5.00$

PENNY PLAY = DIP SWITCH #1 POSITION 1 & 5 ON = 500 PENNIES, AND POSITION 7 ON = 5.00 TICKET $500 \times .01 = \$5.00$

SETTINGS WITH TRIPLE JACK VER. 1.4

TRIPLE JACK WITH THE HANDS COUNT **DISABLED**

BASED ON 4 PULSES PER DOLLAR FROM THE BILL ACCEPTOR AND THE CREDIT RETURN ON THE ULTRA BOARD NOT USED. IF THE CREDIT RETURN MUST BE USED, CALL FOR INFO ON SETUPS.

PENNY PLAY = \$5.00 TICKET 500 CREDITS = TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1,2,&7 ON
SET T/J DIP SWITCH #3 POSITION 1,2&3 OFF
DIP SWITCH #5 POSITION 3,4,5,6&7 OFF 8 ON
DIP SWITCH #7 POSITION 1,2,5,6,7 &8 OFF 6 ON

NICKEL PLAY = \$5.00 TICKET 100 CREDITS = TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 7 ON
SET T/J DIP SWITCH #3 POSITION 1,2 OFF 3 ON
DIP SWITCH #5 POSITION 3,4,5,6 &7 OFF 8 ON
DIP SWITCH #7 POSITION 1,2,5,7,&8 OFF 6 ON

DIME PLAY = \$5.00 TICKET 50 CREDITS = TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1,2,&7 ON
SET T/J DIP SWITCH #3 POSITION 1,2 OFF 3 ON
DIP SWITCH #5 POSITION 3,4,6,7, OFF 5,8 ON
DIP SWITCH #7 POSITION 1,2,5,8 OFF 6 & 7 ON

*NOTE : THE BILL ACCEPTOR MUST BE SET AT 2 PULSES PER DOLLAR



ULTRA SYSTEM

OWNER's Manual

QUARTER PLAY = \$5.00 TICKET 20 CREDITS = TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1 & 7 ON
SET T/J DIP SWITCH #3 POSITION 1,2,3 ON
DIP SWITCH #5 POSITION 3,4,6, & 7 OFF 5 & 8 ON
DIP SWITCH #7 POSITION 1,2,6,7 OFF 5 & 8 ON

SETTINGS FOR TRIPLE JACK WITH HANDS COUNT ENABLED

BASED ON 4 PULSES PER DOLLAR FROM THE DOLLAR BILL ACCEPTOR. CREDIT RETURN ON THE ULTRA BOARD CANNOT BE USED.

PENNY PLAYS = \$5.00 TICKET 500 CREDITS PER TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1,5,&7 ON
SET T/J DIP SWITCH #3 POSITION 1,2,&3 OFF
DIP SWITCH #5 POSITION 3,4,5, & 7 OFF 6 & 8 ON
DIP SWITCH # 7 POSITION 2,5,6,7, & 8 OFF 1 ON

NICKLE PLAY = \$5.00 TICKET 100 CREDITS PER TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 3,4, & 7 ON
SET T/J DIP SWITCH #3 POSITION 1 & 2 OFF 3 ON
DIP SWITCH # 5 POSITION 3,4,5, & 7 OFF 6 & 8 ON
DIP SWITCH # 7 POSITION 2,5,7, & 8 OFF 1 & 6 ON

DIME PLAY = \$5.00 TICKET 50 CREDITS PER TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1,2,3, & 7 ON
SET T/J DIP SWITCH #3 POSITION 1,2, OFF 3 ON
DIP SWITCH # 5 POSITION 3,4,5, & 7 OFF 6 & 8 ON
DIP SWITCH # 7 POSITION 2,5 & 8 OFF 1,6, & 7 ON

***NOTE: SET DBA TO 2 PULSES PER DOLLAR.**

QUARTER PLAY = \$5.00 TICKET 20 CREDITS PER TICKET
SET ULTRA BOARD DIP SWITCH #1 POSITION 1,2,3,&7 ON
SET T/J DIP SWITCH #3 POSITION 1,2,& 3 ON
DIP SWITCH #5 POSITION 3,4,5, & 7 OFF 6 & 8 ON
DIP SWITCH # 7 POSITION 2,6 & 7 OFF 1,5, & 8 ON

NOTE THAT IF THE TRIPLE JACK IS SET TO USE THE HANDS COUNT

IT WILL ONLY COUNT 1-1. THE ULTRA BOARD MUST BE SET TO COUNT THE TICKET VALUE PER 1 POINT.
E.G. 1 POINT = \$5.00

MAGIC BOMB SETUP

NICKLES

COIN IN: 1 COIN 5 CREDITS

KEY IN: 1 TURN 100 CREDITS

ACTUALLY SETS THE NUMBER OF POINTS PER TICKET OR VOUCHER.
THIS SETTING WILL GIVE YOU 1 PULSE FOR EVERY 100 POINTS. TAKES
CREDITS OFF IN 100 CREDIT INCREMENTS AND KEEPS UNUSED POINTS
ON THE GAME.

COIN OUT: LEAVE SET AT 1 PAY 1 CREDIT

KEY OUT: AS KEY IN

PENNIES

COIN IN: 1 COIN 25 CREDITS



ULTRA SYSTEM

OWNER's Manual

KEY IN: 1 TURN 500 CREDITS
COIN OUT: LEAVE SET AT 1 PAY 1 CREDIT
KEY OUT: AS KEY IN

SET THE ULTRA BOARD BOARD

DIP SWITCH ONE – ALL OFF EXCEPT #7
THIS GIVES YOU A SETTING FOR 1 PULSE = A FIVE DOLLAR VOUCHER.

CHERRY MASTERS, NO SPECIAL APPLICATIONS 100 PTS. = \$ 5.00

DIP SWITCH # 1
SWITCHES # 3, 4, & 7 ON = 100 PULSES IN = 1PT, AND EACH PT = 5 OR \$5.00

DIP SWITCH # 2 & # 3 LETS YOU CUSTOMIZE YOUR SETUP

CHERRY 96, FRUIT BONUS 96, ETC TYPE BOARDS

IF YOU SET UP THE GAME BOARD TO COUNT THE CREDITS OUT FOR A TICKET YOU MUST SET UP THE ULTRA BOARD TO A ONE TO ONE, SO THAT IT PRINTS A TICKET FOR EACH PT IT RECEIVES FROM THE MAIN GAME BOARD.

DIP SWITCH # 1
SWITCH # 7 ON AND ALL THE REST OFF. SOME OF THESE BOARDS REQUIRE YOU TO PRINT TICKETS IN MONEY MODE WHICH IS DIP SWITCH # 2 SWITCH # 6. IF YOU RECEIVE A TEST TICKET FOR AN AMOUNT LIKE 45,000 PTS FOR A \$20.00 TRY SWITCHING TO MONEY MODE.

FOR 1c GAMES- CHERRY MASTER TYPE

DIP SWITCH # 1
SWITCHES #1, 5, & 7 ON ALL ELSE OFF

FOR GAMES LIKE CHERRY 96, THE SET UP IS THE SAME AS FOR A NICKLE GAME BECAUSE THE BOARD DOES THE COUNTING DOWN BEFORE IT IS SENT TO THE ULTRA BOARD.

11 Service & Support

11.1 Returning products back to Nanoptix for repairs (RMA)

- Send repair approval request to Nanoptix Inc. please include the following:
 - Product model #
 - Serial #
 - Brief problem description
- Ship defective products to Nanoptix Inc.
- Ensure that each package being sent is identified by the specified RMA number

NOTE: When returning thermal printers, a blank ticket or a piece of paper must be placed between thermal print head and roller.

United States of America

RMA # XXXXXX
Nanoptix Inc.
C/o Brunswick Brokers
48 Customs Loop
Houlton, ME, USA
04730

Canada and International

RMA # XXXXXX
Nanoptix Inc.
699 Champlain St.
Dieppe, NB, Canada
E1A 1P6

NOTE: It is imperative that every package returned be clearly identified by an RMA number.

11.2 Technical Support Contact Information

Service Dept.
Nanoptix Inc.
699 Champlain St.
Dieppe, NB, Canada
E1A 1P6
Tel: 506.384.3388
Fax: 506.384.3588
E-mail: service@nanoptix.com
Web site: www.nanoptix.com

APPENDIX A: Advanced configuration

1: DATE AND TIME

- ↳ 1: SET TIME
 - ↳ ENTER CURRENT TIME
(24 Hr FORMAT, HHMM)
- ↳ 2: SET DATE
 - ↳ ENTER CURRENT DATE
(MMDDYY, no punctuation)
- ↳ 3: <Time toggles between 12HR and 24 HR format>
- ↳ 4: <Daylight savings time toggles between ON and OFF>

2: CUSTOM MESSAGE

- ↳ 1: SET MESSAGE
 - ↳ WHICH LINE: 1- 4, (A)II, ESC
<Select desired line, type message and press "Enter">
- ↳ 2: <Clears all 4 lines of the message>

3: USER ENTERED LAW

- ↳ 1: SET LAW
 - ↳ WHICH LINE: 1- 8, (A)II, ESC
<Select desired line, type message and press "Enter">
- ↳ 2: <Clears all lines of the law information>

4: BATTERY BACKED RAM

- ↳ 1: <Erases books>
- ↳ 2: <Erases books & saved information>

5: OVER WRITE DIP SWITCHES

- ↳ 1: <Displays current settings for all 6 ports>
- ↳ 2: OVER WRITE HW DIP SWITCHES
 - ↳ OVER WRITE DIP SWITCHES, PLEASE ENTER WHICH GAME 1-6 or (A)II or ESC to cancel THIS ACTION WILL RESET ALL ACCOUNTING!!!
 - ↳ PLEASE ENTER THE PULSE IN VALUE, FOR GAME 1 or ESC to Cancel
Value in decimal + ENTER (1-5000 max) currently set at <XXXXX>
 - ↳ PLEASE ENTER THE PULSE IN MULTIPLIER, FOR GAME 1 or ESC to Cancel,
Value in decimal + ENTER (1-1000 max), Currently set at <XXX>
- ↳ 3: GIVE CONTROL BACK TO HW DIP SWITCHES
 - ↳ GIVE BACK CONTROL TO DIP SWITCHES, PLEASE ENTER WHICH GAME 1-6 or (A)II or ESC to Cancel, THIS ACTION WILL RESET ALL ACCOUNTING!!!

6: SET COIN IN MULTIPLIER

▶ 1: SET COIN IN A MULTIPLIER

▶ PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel

▶ PLEASE ENTER THE COIN IN A MULTIPLIER for game # <X> or ESC to cancel, Value in decimal + ENTER (0-254max)

▶ 2: SET COIN IN B MULTIPLIER

▶ PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel

▶ PLEASE ENTER THE COIN IN B MULTIPLIER for game # <X> or ESC to cancel, Value in decimal + ENTER (0-254max)

▶ 3: <Clears all multiplier values back to zero>

7: MORE OPTIONS

▶ 1: <Ultra controller toggles between ON and OFF>

▶ 2: CHANGE IN PLAY FLAG

PLEASE ENTER THE INPLAY FLAG # or ESC to Cancel

▶ <Enter "0" for disabled">

▶ <Enter "1" for CoinIn A">

▶ <Enter "2" for CoinIn B">

▶ 3: <ENTER NEW Multi Drop ADDRESS Value in decimal + ENTER (1-32 max)>

▶ 4: <Coin In Trigger toggles between ON and OFF>

▶ 5: CHANGE PULSE OUT WIDTH

▶ PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel

▶ PLEASE ENTER WHICH PORT 1-3 or ESC to Cancel

<ENTER NEW PULSE OUT WIDTH ON (in ms) Value in decimal + ENTER (0-500 max)>

<ENTER NEW PULSE OUT WIDTH OFF (in ms) Value in decimal + ENTER (0-500 max)>

▶ 6: CHANGE 2nd PULSE OUT SCHEME

▶ PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel

<ENTER WHEN 2nd pulse will start (in ms) Value in decimal + ENTER (0-500 max)>

▶ 7: CHANGE 3rd PULSE OUT SCHEME

▶ PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel

<ENTER WHEN 3rd pulse will start (in ms) Value in decimal + ENTER (0-500 max)>

▶ 8: HOPPER EMULATION

<PLEASE ENTER WHICH GAME 1-6 or ESC to Cancel>

▶ 9: <Optional LED toggles between ON and OFF>